SOUTH AMERICAN SKULLCAP (*SCUTELLARIA RACEMOSA*: LAMIACEAE) IN THE SOUTHEASTERN UNITED STATES

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ABSTRACT

Although previously reported from scattered localities, studies of the habitats and distribution in the United States of the South American native *Scutellaria racemosa* Pers. are lacking. To analyze trends in the spread of *S. racemosa* throughout the southeast we studied 82 specimens from 16 herbaria. Collections taken from roadsides, lawns or golf courses, and nurseries or horticultural plantings accounted for about 76% of specimens examined. Establishment is facilitated by vegetative reproduction via rhizomes and a capacity to produce flowers and fruits throughout the year. Patterns of distribution are likely a result of human activity such as transport of contaminated nursery stock or sod, as well as seed spread on right-of-way mowing equipment.

RESUMEN

Aunque citada de varias localidades, no hay estudios de los hábitats y la distribución en los Estados Unidos de la especie suramericana *Scutellaria racemosa* Pers. Para analizar tendencias en el movimiento de *S. racemosa* en el sudeste de los Estados Unidos, estudiamos 82 especímenes de 16 herbarios. Recolecciones de bordes de carreteras, céspedes o campos de golf, y viveros o plantaciones horticulturales, justifican el 76% de los especímenes examinados. El establecimiento está facilitado por la reproducción vegetativa por rizomas y la capacidad para producir flores y frutos durante todo el año. La distribución es probablemente el resultado de actividades humanas, incluyendo el transporte de plantas de vivero o suelo contaminado, así como semillas diseminadas por cortacéspedes.

Native to South and Central America (Leonard 1927; Epling 1942), *Scutellaria racemosa* Pers. (South American skullcap, Lamiaceae) was first reported from North America in 1973 (Kral 1973) and subsequently reported from sporadic collections in the southeastern United States (e.g., Godfrey & Wooten 1981; Tobe et al. 1998). Following observation of encroachment of a population into nursery pots and nearby natural areas in Chatham County, North Carolina (Krings & Neal 2001), we grew concerned over the potential of this species to become invasive in our state. Although previously noted from the southeast primarily in floras, checklists, and noteworthy addition articles (e.g., Kral 1973, 1981; Godfrey & Wooten 1981; Allen 1983; Jones & Coile 1988; Tobe et al. 1998), scant information concerning the invasion of habitats and overall distribution in the United States has been published. In this study we sought to more carefully examine the distribution and habitat of the species in the southeastern United

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States. Specifically, our objectives were to: (1) compile an up-to-date atlas of *S. racemosa* in the southeastern United States, (2) compile and analyze habitat and phenology data, and (3) analyze any trends in the spread of *S. racemosa* throughout the southeast.

METHODS

The distribution and habitat of *Scutellaria racemosa* in the southeastern United States was compiled based on study of vouchered herbarium specimens, guided by previous literature citations (e.g., Penland 1924; Radford et al. 1968; Kral 1973, 1981; Godfrey & Wooten 1981; Allen 1983; Jones & Coile 1988; Tobe et al. 1998; Wunderlin & Hansen 2000). Eighty-two collections were analyzed—comprising the totality of *S. racemosa* holdings in the following herbaria: AUA, DUKE, GA, GH, FLAS, FSU, LSU, MO, NCU, NCSC, NO, NY, UNA, USCH, USF, TEX. Habitat and phenology data were taken from mounted specimens. In addition, field surveys were undertaken by Krings in east Texas and southeast South Carolina.

RESULTS

An updated distribution of *S. racemosa* is provided in Figure 1, d. New county records are reported from FL, GA, LA, SC, and TX and herbaria interested in updating their records may wish to consult the list of exsiccatae (Appendix A). The species remains unreported from Mississippi, although, based on its known distribution along Interstate 10 and habitat preference, it is extremely likely to occur—especially in the southern counties of Pearl River, Hancock, Stone, Harrison, George, and Jackson. It is also likely occur in other Texas counties, particularly Harris, Chambers, Jefferson, Orange.

Scutellaria racemosa has been collected in the southeastern United States in fruit and flower in every month of the year and in a variety of habitats ranging from wet, roadside ditches to lawns and orange groves (Fig. 2). The largest number of collections (40%) were taken from roadside ditches, embankments, or right-of-ways. Collections from lawns or golf courses constituted approximately 19% of all collections. Collections from nurseries or horticultural plantings constituted nearly 18%. The species has also been sporadically collected from pine forest, hayfields, and disturbed sites. Soils ranged from sandy to muck and sites from low to high maintenance (e.g., mowed turf)—suggesting a potential to infest varied environs and tolerance of site management activities such as mulching and mowing.

DISCUSSION

An obligate wetland species (Reed 1988), *S. racemosa* has already shown itself a potential weed of irrigated landscapes, such as lawns and golf courses (Fig. 2). Although first reported from Baldwin Co., Alabama (8 Jun 1971, *Kral 43084*,

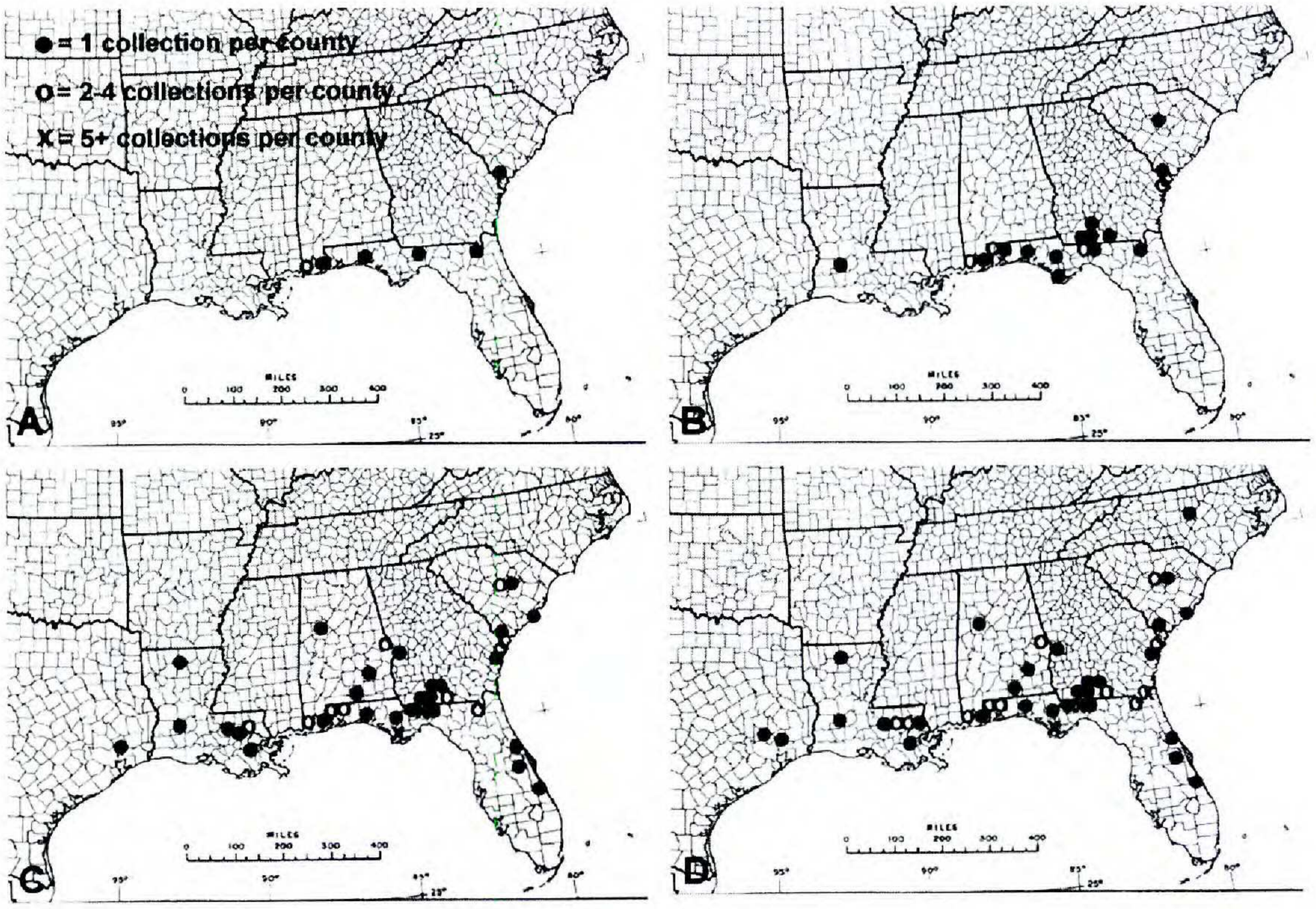

FIG. 1. Distribution of *Scutellaria racemosa* Pers. (Lamiaceae) in the southeastern United States from its earliest collection in 1965 (Mobile Co., Alabama) to present: A, 1965–1975; B, 1976–1985; C, 1986–1995; D, 1996–2000.

AUA, FLAS, GA, NCU, UNA, USF) by Kral (1973), the earliest North American collection appears to be from neighboring Mobile Co. (10 Apr 1965, *Deramus D378*, UNA). The method of initial introduction is unknown, although it is likely that the species was introduced accidentally with horticultural plants shipped from Central or South America. Although the species is known from coastal Mexico (Epling 1942), an overland introduction does not seem plausible given the complete lack of collections from southeastern, coastal Texas and the lack of any Louisiana collections before 1982. In the ten years following the initial 1965 collection in Alabama, further collections had been made in Florida and as far north as South Carolina (Fig. 1, a). A comparison of Fig. 1 to roadmaps of the southeastern US reveals a close agreement between occurrence records and major by-ways (e.g., I-10, Hwy 17). Although occurrence patterns may be biased somewhat by the ease of roadside collection, the small number of collections from relatively isolated wetlands remains surprising – especially given the recent effort to study and delineate wetlands in the southeastern United States. Although unknown, it is not likely that seeds were dispersed so rapidly over such distances by natural means (e.g., through the highly mobile avifauna). It is more likely that dispersal was achieved as a consequence to human activity, such as transport in sod, nursery crops, or right-of-way mowing equipment. As

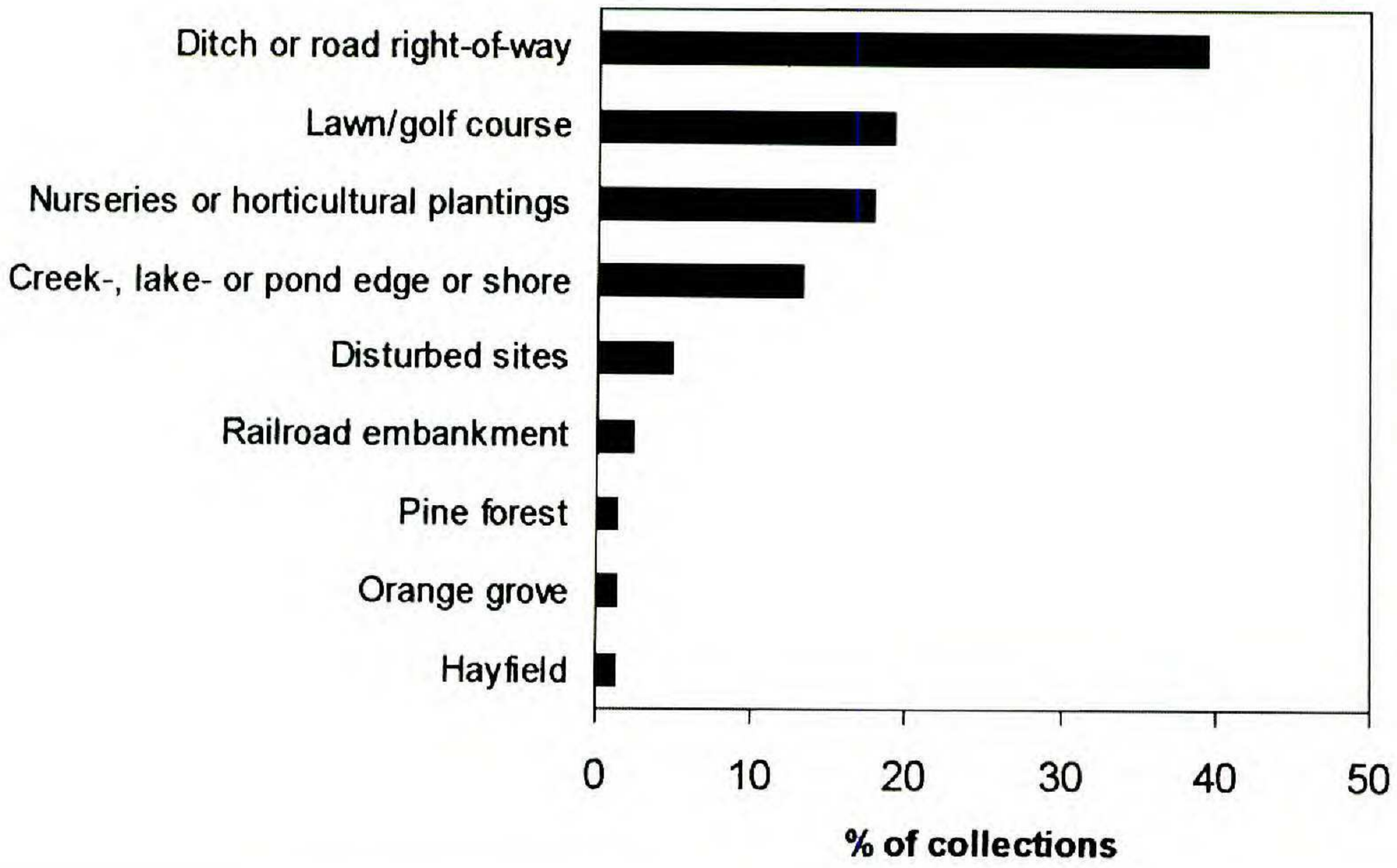

FIG. 2. Habitat class as percentage of collections of *Scutellaria racemosa* Pers. in the southeastern United States.

shown in Fig 2, about 18% of herbaria collections came from nurseries, horticultural plantings, or root balls of nursery crops. The collections from lawns and golf courses (19%), as well as lake or pond shores (13%), also potentially originated from populations established either from the root balls of introduced landscape plants or through the movement of sod. Dispersal based on transport of nursery stock has been previously implicated in the movement of other annual and perennial, rhizomatous weeds in the eastern United States, including *Fatoua villosa* (Thunb.) Nakai (Massey 1975) and *Artemisia vulgaris* L. (Uva et al. 1997).

Encroachment into natural landscapes by *S. racemosa* seems to be limited by degree of human movement and soil moisture. However, the apparent ease and speed of establishment along wet, roadside ditches is of concern as these populations can serve as persistent sources for slower, yet repeated advances into more natural settings. Establishment is facilitated by vegetative reproduction via rhizomes and a capacity to produce flowers and fruits throughout the year. The recently documented North Carolina population (Krings & Neal 2001) was clearly spreading into nursery pots from established plants growing alongside ground tarpons, by sending rhizomes into pots through holes in the bases and tarpons.

In the thirty-five years since its first collection in Alabama, *S. racemosa* has spread into seven states and is to be expected in an eighth—Mississippi. In tropical America, the species is known from Vera Cruz to Valdivia (Epling 1942) and reported from grassy hillsides to damp thickets and stream banks (Leonard

1927). Based on its zonobiomic distribution in South America (Leonard 1927; Epling 1942; Walter 1985), it should subsist at least as far north as Baltimore, Maryland. The potential area of expansion in North America extends from the southern tip of Florida to southern Maryland, westward to western and northern Arkansas, and southward into east Texas. To combat this introduced weed, future studies are needed to evaluate (1) the population biology of *S. racemosa* and its effect on native, wetland vegetation, and (2) the extent of nursery crop infestation.

APPENDIX A

List of exsiccatae of *Scutellaria racemosa* Pers. in the southeastern U.S.

U.S.A. ALABAMA. Baldwin Co.: Sandy gravelly railroad embankment through *Hypericum* pond just N of jct I-10 on Ala. 59 and 6 mi S Stapleton, abundant, 8 Jun 1971, *Kral 43084* (AUA, FLAS, GA, MO, NCU, UNA, USF). **Covington Co.:** LBW Junior College on US Hwy 84 in Andalusia, growing around the edge of the lake on the golf course, full sun, sandy wet soil, T4N, R16E, Sec. 15, 21 Apr 1994, *Diamond 9070* (AUA); Sandy loam of shoulder bypass US 29/84, N side of Andalusia, common in shadier sites, 2 Apr 2000, *Kral 89387* (USCH). **Lee Co.:** In sandy soil in filtered sun under an azalea plant in a flower bed in the Presidents front lawn on the Auburn University Campus, several plants present, all on the root ball of the azalea, 8 Jul 1986, *Diamond 2613* (AUA); Auburn University campus in the Presidents lawn, in a flower bed with azaleas and spreading into the lawn, common weed in the lawn, in full sun and sandy soil, 25 May 1987, *Diamond 3245* (GA); Auburn University campus in the Presidents lawn, in a flower bed with azaleas and spreading into the lawn, common weed in the lawn, in full sun and sandy soil, 25 May 1987, *Diamond 3246* (NCU). **Mobile Co.:** Bienville Blvd, near water tower, sunny, grassy, mod. Moist, infreq. herb., 10 Apr 1965, *Deramus D378* (UNA); Bienville Blvd, near E end, sunny, moist, infrequent, 30 Apr 1967, *Deramus D1063* (GH, UNA). **Pike Co.:** Troy State University Campus, Lake Lagoona, edge of the lake, full sun, wet muck soil, common, T10N, R21E, Sec. 33, 11 May 1993, *Diamond 8615* (AUA). **Tuscaloosa Co.:** Common component of lawn, front (W side) of Biology Bldg, adjacent to Hackberry Lane, Univ. Alabama campus, Tuscaloosa, T/R/S: T21SR10W24, 12 May 1987, *Burckhalter 991* (UNA).

FLORIDA. Baker Co.: Plants trailing, banks of drainage ditch in nursery plots, approximately 4 mi S of MacClenny on Fla 121, 16 May 1975, *Heppner s.n.* (FLAS); 2 mi S of US 90 on CR 123, on left at end of CR 123, in hayfield, common, cows will not graze, 28 Apr 1992, *Harvey s.n.* (FLAS). **Calhoun Co.:** Locally abundant on spoil bank across floodplain, right-of-way paralleling highway bridge over Chipola River, S of Blountstown, 21 Jun 1982, *Godfrey 79877* (FSU). **Escambia Co.:** Pensacola, common, sandy loam soil, low moist weedy grassy place, alongside fence of Main St. sewage treatment plant, E side of Donelson St., N of Main St., 4 Apr 1976, *Burkhalter 3669* (FLAS); Pensacola, S of Cedar St., E of Commendencia St., near railroad tracks, soil dark, rich, common in the Pensacola area, particularly so in low moist sites, 12 Jul 1981, *Burkhalter 7819* (FSU); Frequent, lawn weed, Tom Lane Drive, Pensacola, 20 Apr 1989, *Dunavin s.n.* (FLAS). **Gadsden Co.:** Frequent among grasses and sedges of right of way along highway 90 at Lanier Rd, 3 mi SE of Little River bridge, SW1/4 Sec 30, T2N, R2W, 13 May 1987, *Anderson 10507* (FSU). **Gulf Co.:** Mat-forming, in grassy lawn-like place, roadside park, just by Westarm Creek, N edge of Wewahitchka, 24 Apr 1978, *Godfrey 76327* (FSU, GA); On moist slope above cypress pond along Rte. 22, ca. 1.5 mi W of Wewahitchka, flowers pink, 4 May 1982, *Correll & Correll 53923* (NY, USF); N side SR 386, 2.95 mi W from jct with SR 71 (Wewa), damp, peaty sands in roadside ditch adjacent to disturbed pine flatwoods, 6 Jun 1987, *Gholson with Godfrey & Baker 11830* (FLAS, GA); Shallow, broad ditch at edge of fallow field, by Fla. Rd 386, 3 mi from its jct with Fla. Rt 71 S of Wewahitchka, slender plants growing extremely densely, 6 Jun 1987, *Godfrey*

82413 with Gholson & Baker (FSU, GA); Weedy, amongst grasses and sedges in wet roadside depression along Rte 22 (N side), 3.4 mi W of Wewahitchka and Rte 71, 28 May 1991, *Anderson 13425* (FSU). **Indian River Co.:** SW of Feldsmere, orange grove, S7 T31S R37E, 2 Nov 1988, *Mears s.n.* (FLAS, MO, USF). **Jefferson Co.:** Several weedy patches among flowers planted on W side of Jefferson County courthouse, downtown Monticello, 16 Jun 1980, *Nelson 1631* (FSU). **Leon Co.:** In peaty mucky soil, small clearing of cypress swamp, shores of Lake Munson at the Public Boat Landing, plants also extending into a small lawn-mowed area adjacent, 22 April 1974, *Godfrey 73437* (FLAS, FSU, NCU, USF); Small plant (with blueberry bush planted at 3237 Sharer Road last summer) actively spreading into lawn, N side of Tallahassee, 26 Mar 1976, *Anderson 4129* (FSU, NCU, USCH, USF); Small clumps of herbs along hurricane fence behind Florida High School, Tallahassee, 26 Oct 1977, *Nelson 949* (FSU, GA); Plants essentially past flowering; frequently seen along ditch margin just W of Tully Gym, FSU campus, this ditch overflowers its banks nearly every time it rains, 1 Aug 1981, *Nelson 1940* (NCU); In enriched soil of vegetable garden, Tallahassee, 29 Apr 1982, *Godfrey 79702* (MO); Shrubbery bed on the N side of W Tennessee St., North Florida Education Credit Union, 1 Apr 1983, *Leonard 8113* (FSU); Frequent in muddy soil [...] around edge of Lake Ella, just E of N. Monroe St. in Tallahassee, 20 May 1985, *Anderson 8085* (FSU); Common in lawn of low, shaded area along Pensacola St. just W of Dupree St. in Tallahassee, 11 Jun 1986, *Anderson 9535* (FSU); Frequent amongst weedy growth along Sugar Creek near (edge of shopping mall) near Sharer Rd, just N of Hwy 27 in Tallahassee, 13 Apr 1990, *Anderson 12620* (FSU); Lake Jackson in Sunset Park off Old Bainbridge Rd, on a wet bank at the edge of a marsh at the lake, 21 Oct 1992, *Godfrey 84438* (A, NY); In sand of sparse lawn bordering Blountstown Hwy between Tennesee St. and Pensacola St. in Tallahassee, 4 Apr 1995, *Anderson 15412* (FSU, USCH); Elinor Klapp-Phipps Park (W of Meridian Rd, N of Tallahassee, T2N, R1W, Sec 35), frequent in disturbed sites bordering open fields of Lake Jackson at edge of hardwoods, S of marker 7, 23 Apr 1996, *Anderson 16264* (FSU). **Nassau Co.:** White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, near Animal Science Building and the nearby ditches, ditch and shady roadbank, 25 Oct 1997, *Wilbur 69802 & Moore* (DUKE); White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, borrow pit along Short-Cut Road near the Perimeter Road in the SW corner, highly disturbed area, erect herb, only clump seen, 28 Oct 1997, *Wilbur 69972 & Moore* (DUKE); White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, in the woods behind the Animal Science Building and along a sandy drainage ditch, 25 Apr 1998, *Wilbur 70456* (DUKE, GA); White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, ditch along the E side of the road that encircles the Necroscopy-Biodiversity Building, abundant in shallow ditch, 25 Apr 1998, *Wilbur 70482 & Wilbur* (DUKE, GA); White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, disturbed sites near the Necroscopy Building and the slopes W of the road on the western side E of Spare Lake, 25 Apr 1998, *Wilbur 70517* (DUKE); White Oak Plantation bordering on the St. Mary's River ca. 10 mi NW of Yulee, borrow pit near the South Boundary, abundant, 29 Apr 1998, *Wilbur 70716 & Wilbur* (DUKE, USCH). **Orange Co.:** Soil wet, organic, common, weed in fernery at 2810 Union St., Zellwood, 23 Jun 1990, *Boone s.n.* (FLAS). **Santa Rosa Co.:** Wayside Park, S side I-10, E side Escambia Bay, near Pensacola, sandy-loam soil, which was probably hauled in, 16 Sep 1977, *Gholson 6681* (FSU); Milton, between bowling alley and Odom Fiberglass (2944 Avalon Blvd) on Santa Monica St., E at end of road near Avalon Blvd, in landscape, frequent, invasive, this plant is vigorous, spreads easily, competes with shrub plantings, 14 Jun 1994, *Hockett s.n.* (FLAS). **Volusia Co.:** Weedy patch within *Canna* planting, median of Willow Run Dr, Port Orange, 27 Nov 1987, *Nelson 6273 with Wnek* (USCH). **Walton Co.:** Among shrubbery, 4 mi S of Freeport, 25 May 1971, *Davis 15823* (FLAS).

GEORGIA. **Chatham Co.:** Top of bank on drainage ditch in open low flats of Savannah River, just E of Savannah, 22 Apr 1978, *Duncan 30489* (GA); Dense colonies in depressions, Hunter Nursery, Old Louisville Rd, uncommon, 20 Sep 1979, *Duncan 30622* (GA). **Colquitt Co.:** Moist bank of roadside ditch, 6 mi S of Moultrie, by US Rt 319, 30 Apr 1978, *Godfrey 76344* (FSU). **Cook Co.:** 1 mi W of I-75 on S.R. 37, growing on roadside between pavement and wet ditch, 14 May 1991, *Mears s.n.* (USF).

Grady Co.: In alluvial mud of ditch, at roadside at Barnett's Creek, by US Rt 84, E of Cairo, 28 Apr 1980, *Godfrey 77747* (FSU); Roadside embankment, along US #84, ca. 5 mi E of Cairo, 11 Apr 1994, *Henderson 94-76* (MO); Low roadside, along GA #111, ca. 1 mi S of Reno, 20 Aug 1994, *Henderson 94-850* (MO). **Liberty Co.:** Ft. Stewart Military Reservation, Training Area D-3, Grid Coor. 385278, 100m SE of jct FS 38 and FS 40, loamy soil on bank of Mill Creek (channelized), locally common, 25 Aug 1992, *Carter 10403 & Lusk* (GA). **Lowndes Co.:** Weedy area along Two Mile Creek in McKey Park between N. Patterson and N. Oak Streets in Valdosta. Coastal Plain Province, 15 May 1980, *Faircloth 8455* (FSU, GA, NCU); US Hwy 84, 2.1 mi E of the Brooks Co. line, on the S side of the road, roadside, abundant, moist sandy ditch in full sun, 22 May 1988, *Diamond 4801* (AUA). **Muscogee Co.:** Columbus, 6219 Windsor Dr, Bermuda grass lawn, full sun, sandy loam soil, 2 Oct 1987, *Brantley s.n.* (GA). **Sumter Co.:** Locally fairly common on ditchbank on W side of Brady Rd, just N of jct Bone Rd, ca 3 (air) mi SE of Americus, Sumter Co., elev. ca 350 ft., main soil herecas is Irvington sandy loam (now moist to wet), near fencerow of chinaberry, opposite cow pasture and farm pond, Repl. 6 (Pollen Sample No. 111), 2 May 1997, *Norris 6829* (GA). **Thomas Co.:** In shallow water of drainage ditch at side of road and just outside of fence of pasture, just inside city limits of Thomasville (to W), by US Rte 84, 13 Apr 1984, *Godfrey 81178 with Gholson* (FSU).

LOUISIANA. **Allen Parish:** Infrequent in pine forest off US 165, ca. 2 mi N of Oberlin, 6 May 1982, *Allen 11947* (FSU). **East Baton Rouge Parish:** Along Christian St. at Hollydale Town Houses and at Perkins Road and I-10 overpass in Baton Rouge, 5 Nov 1993, *Thomas 138578* (NY). **Lincoln Parish:** Ditchbank at a nursery on the S side of US Hwy 80, 1.2 mi E of Louisiana Hwy 33, just outside the eastern edge of Ruston city limits, sandy loam, common, 28 Apr 1988, *Boyd & Boyd 3095* (LSU). **Livingston Parish:** Roadside ditch along eastbound I.H. 12, 2.3 mi W of LA 43 exit, W of Hammond, 3 May 1989, *Urbatsch 5445 with Cox* (LSU); common along roadside of local rd at jct with I-12, Satsuma, LA, 16 Sep 1996, *Montz 8323* (LSU); common in rear of yard at 25088 Hwy 42, Holden, LA, ca. 3 mi W of junction of Hwy 42 and Hwy 43, 2 Jul 1998, *Montz 8894* (NO). **Ouachita Parish:** Large population between edge of road and end of culvert on first canal N of the entrance to Chennault Park E of Monroe, 29 May 1997, *Thomas 154251 with Gabel* (GA, NO, NY, USCH). **Saint Charles Parish:** Bonnet Carre Spillway, rare only 3 plants noted and 2 collected, N of Hwy 61 near E guide levee at old Recreation facility, 9 Dec 1995, *Montz 8098* (LSU). **Saint Tammany Parish:** Interstate 12 at the E bound rest area near Covington at the Tchefuncte River, 13 May 1999, *Alford 1967 with McDaniel* (DUKE). **Tangipahoa Parish:** Southeastern Louisiana State University campus, common along Columbus Dr near University Center, Hammond, LA, 9 Apr 1994, *Montz 6607* (LSU, NO); Southeastern Louisiana University campus, locally common only in this area near Physical Plant & Services Shops along N Oak St., Hammond, LA, 28 Jan 1995, *Montz 7338* (LSU, NO); Southeastern Louisiana University campus, infrequent at Horticulture Complex along N Oak St., Hammond, LA, 8 Apr 1997, *Montz 8607* (LSU, NO).

NORTH CAROLINA. Chatham Co.: Specimen from potted plant collected 4 Dec 1998 from 2925 NC Hwy 751 and grown in North Carolina State University greenhouse by Joseph Neal, 1 Dec 2000, *Krings & Neal 365* (NCSC); 2925 NC Hwy 751; From fertilized pots of shrubs kept in enclosed greenhouse space and receiving regular irrigation, 6 Dec 2000, *Krings & Neal 366* (BHO, NCSC, USCH).

SOUTH CAROLINA. Charleston Co.: Jenkins Nursery, Rt. 17-S, Charleston, submitted by Joanna Hubbard for ID (Dept. Horticulture, Clemson University), weed in boxwood pots and established in ditches and nursery, first seen 3 years ago, probably came in from Florida, 2 Feb 1989, *Hill 20176* (GH, MO, NY, USF). **Jasper Co.:** Ditch near US 17A, Savannah Wildlife Refuge, 1 mi NW of SC 170 jct, 20 Apr 1974, *Radford 46268* (FLAS, FSU, GA, GH, NCU, NY, USCH, USF). **Richland Co.:** Moist lawn, 6221 Monticello Road, Columbia, Aug 1977, *Rayner 1013* (USCH); Blossom St. side of Hardees, opposite Coliseum, Columbia, fairly abundant, sprawling and/or intertwined within branches of low shrubbery, 10 Dec 1992, *Nelson 13693* (USCH); Commonly matted and tangled together in some abundance on wet, grassy ground, 1900'WSW of Paton Stadium, 1st Brigade Training Site (Black Lions), ca. 5 mi E of downtown Columbia, elev. 225', 11 Jun 1999, *Nelson 20591* (USCH). **Sumter Co.:** Shaw Air

Force Base, Sumter, very abundant and tangled together on wet sandy ground with *Cyperus sesquiflorus* at edge of northernmost of three golf course ponds, along causeway end of the pond, 20 July 1994, *Nelson 15753* (GH, USCH).

TEXAS. Liberty Co.: Wet ditch along Hwy 321-105 ca. 3 mi E of Cleveland, 23 May 1987, *Brown 11136* (TEX). **Montgomery Co.:** New Covey, in wet ditch immediately across from entrance to Lake Houston State Park, 9 Dec 2000, *Krings 371* (NCSC, TEX, TAMU).

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